

581

PROPOSED EXPEDITION
TO EXPLORE ELLESMERE LAND

NORTHWEST OF BAFFIN BAY

AND TO RESCUE

BJÖRLING AND KALLSTENIUS

SWEDISH NATURALISTS LOST IN THE ARCTIC

BY ROBERT STEIN

U. S. Geological Survey, Washington, D. C.

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THE PROBLEM

AND ITS

SOLUTION



MAIN PRINCIPLE.

In its article on "Polar Regions," vol. XIX, p. 327, the *Encyclopædia Britannica* says: "In planning a new Polar expedition, it will be necessary to profit by the lessons of experience. This experience may be summed up in a few words. Any advanced ship or party must have a depot-ship to fall back upon which is within reach, and also in communication with the outer world. This makes disaster on a large scale, humanly speaking, impossible."

These words describe the essential principle of the present project: **a secure base of operations.** For greater security it will be placed not on a frail ship but on firm land, at the entrance of Jones Sound, where it will depend for communication not on the uncertain fortunes of a single ship but on a whole fleet—the whaling steamers which annually sight that point.

OBJECT.

The two main objects of Polar exploration in the past have been the discovery of the northwest passage and the attainment of the Pole. In the search for the northwest passage the Parry archipelago was traced 730 miles to the west of Baffin Bay. In

the race for the Pole the shores of Smith Sound were traced 660 miles north from the same point.

Between these two lines of search lies a triangular area of about 100,000 square miles (or twice the size of the State of New York), which, lying neither in the direction of the north-west passage nor in the direction of the Pole, has been almost entirely neglected. Jones Sound and Smith Sound were both discovered by Baffin in 1616, but while Smith Sound, opening *northward*, has been thronged with explorers, Jones Sound, opening *westward*, has been visited only three times, each time only for two days, and explored only 160 miles westward.

The northwest passage was discovered only to prove impracticable for vessels; and as for the attainment of the Pole, scientific men are unanimous in regarding it as of no practical value except for geodesy. All authorities are agreed that researches in physics and natural history as influenced by Arctic conditions are of the highest value; but for this purpose any point within, say, the 76th parallel is practically as good as any other. As a necessary prerequisite to such researches, the distribution of land and water must be known. Thus the legitimate objects of Arctic research are the filling of the blank space with shorelines, and, so far as possible, with contours of height and depth; and, on the basis of this pioneer work, observations of natural phenomena of all kinds. The *easy* and *definite* problems ought to be solved before the difficult and indefinite. No one ought to plunge without definite prospect into unknown wastes of ice until every easily accessible shoreline has been traced to its end.

Now there is not in all the Arctic an unknown area offering so *definite* a prospect as the triangular area between Ellesmere-Grinnell Land and the Parry archipelago. On one side of that triangle, Ellesmere-Grinnell Land, having an eastern shore 495 miles long in a straight line (140 miles longer than England), must have a western shore at least as long; while on the other side, North Kent, North Cornwall, Seymour, Paterson, Finlay, Vesey Hamilton, Markham, Emerald, and Fitzwilliam Owen islands, forming a line 390 miles long, peep with their southern brows out of the unknown, inviting exploration of their northward-trending flanks. Along both these lines (which are almost

exactly perpendicular to each other), a number of perfectly definite questions await solution. Does the coast from Aldrich's farthest trend in the direction of Prince Patrick Island, as supposed by Nares, or does it run almost straight southward, as assumed by Greely? Is Hayes Sound a bay, as intimated by Nares, or a strait, as believed by Greely and reported by the Eskimos? Is North Kent an island, as charted by Belcher, or a peninsula connected with Ellesmere Land, as outlined by Dr. Boas from the statements of the Cumberland Eskimos? Is Cardigan Strait really the westward continuation of Jones Sound, or separated from it by a barrier of land? Was the open water, found there by Belcher as early as May 20, the exception or the rule? What truth is there in the report of an abundance of musk oxen and reindeer in the western part of Ellesmere Land, and of walrus, seal, and polar bears, in the adjoining sea? Where is that tribe of Eskimos, said to be living on Ellesmere Land but never yet seen by white men? In short, no other Arctic area of equal extent contains so many interesting and perfectly definite problems.

At the same time there is probably no Arctic area whose problems are *easier* of solution. The gateway to this area, the northern entrance of Jones Sound, seems to present the most perfect base of operations in all the Arctic. As pointed out by the *Encyclopædia Britannica*, the base of operations must possess two qualities: it must be close to the area to be explored, and it must be in assured communication with the outer world. It will readily be admitted that, as regards communication, those points which lie in the path of the whalers possess so decided an advantage that the others need not be considered. Of the three lines of whalers, the American follows the northern shore of Alaska and British North America, which faces an open ocean, and is therefore unsuitable for a northward advance. The whaling grounds of the Norwegians indeed have masses of islands to the north of them which might serve as bases; but their vessels do not approach close to these islands, and moreover do not pursue a regular route, so that they can not be depended on. The Scotch whalers, on the contrary, at least on their outward voyage, pursue almost invariably the same route year after year, close to

large masses of land stretching indefinitely northward. It remains, then, to find that point on this route which is closest to the unexplored area. A glance at the map shows that this point is the northern entrance to Jones Sound, which also happens to be the most northerly point reached by the Scotch whalers, only 120 miles from the great Polar blank.

PLAN OF OPERATIONS.

At this point, therefore, say at Cape Tennyson, or as close to it as possible, it is proposed to establish a base of operations, consisting of a house and provisions for two years for at least ten men. The point marked "Depot" on the accompanying maps indicates approximately the site of this station.

About May 1, 1894, the party will leave St. John's, Newfoundland, on a whaler. (One whaling firm has offered to transport the party for \$250 per man for the round trip.) Having landed them at Cape Tennyson, the whaler proceeds to the whaling grounds in Lancaster Sound, about 80 miles south of Jones Sound. If Cape Tennyson can not be reached, the landing will be made on Coburg Island, or even at Cape Horsburg, on North Devon. Immediately on landing, four men proceed to erect the house. The others follow the coast of Ellesmere Land westward, not, however, before they have seen two years' provisions deposited on dry land behind them. At a point as far ahead as practicable (say 100 miles from the base) an advanced depot will be established. If possible, an attempt will be made to reach Hayes Sound. At the end of 80 days (about the beginning of September) the whole party will be reassembled at the base and go into winter quarters. In the following spring (1895) an endeavor will be made to extend the preceding year's explorations, to connect, if possible, with the discoveries of the Greely party on Greely Fiord. Timing their return so as to arrive at the base about the end of August, the party will abandon the station and make their way southward to Cape Warrender, about 140 miles away, on the south shore of North Devon. (*See illustration on page 15.*) That cape projects far southward into Lancaster Sound, the whalers' hunting grounds.

It is one of their landmarks. By an arrangement made before leaving St. John's, a whaler is to call at that point at a specified time, say between September 15 and September 30, 1895, to take the party on board and land them either at St. John's or in Scotland.

Details will necessarily be determined by the conditions found to prevail in Jones Sound. It is hoped that much, if not most, of the distance can be accomplished in a steam-launch; but whaleboats and sledges will also be provided. Dogs will be bought in Greenland and may be used in sledge-work in the spring of 1895. If Eskimos are found on the west coast, the advanced depot will have to be guarded by at least three men; otherwise it may be left unguarded.

SCIENTIFIC OBSERVATIONS.

Scientific and economic research being the only legitimate objects of Polar exploration, the claims of the various sciences and industries to recognition will be satisfied to the fullest possible extent. Eighteen months' meteorological observations taken at the station will be welcomed by all students of climatology; observations on gravity will render the data of geodesy more precise; the tides and currents observed here will aid in explaining the tides and currents elsewhere; the fuller knowledge gained of the distribution and variation of magnetism will increase the mariner's and surveyor's faith in his compass; the mysterious phenomenon of the aurora may open the way to a new science when observed to best advantage. The geology of Ellesmere-Grinnell Land is of exceeding interest, not only as throwing light on the history of the glacial period in Europe and America, and affording, by the remains of its rich Miocene flora, a startling evidence of changed climate, but also because from all accounts it would seem that no part of the earth's crust is rising as rapidly as this, pieces of driftwood, fresh enough to burn, having been found at a height of 400 feet or more. Eskimo reports tell of a strait to the west of Ellesmere Land through which the tide at high water rushes with great rapidity, while at low water the strait is dry. This would be another evidence of

an unusually rapid rise of the land, for otherwise the bottom of the strait would long ago have been worn down below low-tide level. The chances of finding valuable minerals on those Arctic lands that are not covered by ice are as good as anywhere. From Sherard Osborn's report it would seem that the flora on the south shore of Ellesmere Land is more luxuriant than in most Arctic localities, so that botanical (and no doubt zoological) collections from that shore will be of unusual interest. If, according to Sir George Nares' account (quoted on page 16), the marine fauna and flora immediately north of Ellesmere Land are exceedingly rich, it is fair to expect that in Jones Sound, too, the dredge will bring up an opulent harvest. New whaling grounds may be found, for which the whalers themselves rarely have time to search; and it may be noted that a whaling ship has been known to return with a cargo worth \$400,000. Belcher, Sherard Osborn, and Nares found abundant Eskimo remains of ancient date on and near the shores of Ellesmere Land, and reports coming from two sources would indicate that that land harbors the only Eskimo tribe never yet visited by white men. This, therefore, will be a splendid field for an anthropologist desirous of studying primitive conditions.

RESCUE OF THE MISSING SWEDISH SCIENTISTS.

In June, 1892, two young Swedish naturalists, Björling and Kallstenius, with a crew of three, set out from St. John's on a collecting trip along the west Greenland coast, in a small schooner, the *Ripple*. The wreck of this vessel and the body of one of the crew were found by Capt. McKay, of the Dundee whaling steamer *Aurora*, on the Cary Islands, on June 17, 1893. Letters addressed to Prof. Nordenskiöld told that the schooner had run aground near the islands in August, 1892, and that the party, having failed to reach Greenland, were preparing, on October 12, to start immediately for Ellesmere Land, with provisions to last till January 1, 1893, hoping to reach the Eskimos at Cape Faraday or Clarence Head. They had two rifles, one shotgun and considerable ammunition. They intended to return to the Cary Islands by July, 1893, to meet any whaler or to push on to the Danish settlements. Capt. McKay at once headed for Ellesmere

Land, but the ice prevented his landing in the limited time at his disposal. No further news having been received, the party, if alive, is almost certainly on Ellesmere Land. Thus the proposed expedition, landing there at the earliest practicable date, will bring the only possible chance of relief. It will make the search for the lost party its first duty, to which everything else will be subordinated. In order to be fully equal to the requirements of the case, the party ought to receive a reinforcement of at least six men, to follow the east shore to Cape Faraday and beyond, while the south shore is examined by the party previously described.

AUXILIARY STATION AT CAPE WARRENDER.

As previously stated, the party will make its way southward to Cape Warrender, on the north shore of Lancaster Sound, in September, 1895, to be taken on board a whaler and conveyed home. While this arrangement, without further provision, is quite safe, yet there would be a great gain in comfort and ease of traveling if a small house and depot of provisions were established at Cape Warrender in the summer of 1894, a party of, say, four men being conveyed to that point by the whaler after the main party has been landed on Ellesmere Land. By that means, almost constant communication might be maintained with the whalers.

PERSONNEL.

Up to January 9, 1894, 60 young men had offered their services. Of this number, 4 are physicians, 4 civil engineers, 2 mining engineers, 3 surveyors, 3 machinists, 1 chemist and physicist, 2 geologists, 1 taxidermist, 2 artists, 2 professional photographers (several others being amateur taxidermists, artists, and photographers), 1 mining prospector, 1 anthropologist; 3 have served three years in the German army, and many have traveled extensively in the western Territories and in Alaska. Only 3 have been definitively accepted, but at least 30 are regarded as suitable.

SYSTEMATIC EXPLORATION IN FUTURE YEARS.

A previous prospectus was accompanied by a supplement describing a plan of continuous exploration to be initiated by next

year's voyage. While that plan has met with warm approval on the part of some Arctic authorities, doubts have been raised by others as to its feasibility. As the plan will be incidentally tested by next year's explorations, it is not necessary at present to form a definite judgment concerning its prospects. It may suffice to enumerate a few arguments for and against its practicability.

If next year's expedition meets with the marked success that is expected, it may be possible to make the station at the entrance of Jones Sound a permanent base of operations, kept constantly supplied by the whalers, and from it a fan of secondary stations, about 150 miles apart, may be pushed as far into the unknown area as practicable, continuing exploration so long as any unknown area remains within reach. Each secondary station is to be occupied by no more than five men, one engaged in scientific work, the others in hunting. The number at the base station is not to exceed 15. The entrance of Jones Sound seems best suited to serve as a base; but if experience reveals a better site, the base may be shifted. The two requisites for each secondary station will be safe communication with the base and sufficient animal life to furnish the bulk of the food supply. No new station is to be established until the preceding one has been proved to be perfectly reliable. The manifest advantages of such a system, if practicable, will be cheapness, due to the continuity of the system; safety, due to the proximity of the base and the avoidance of hurry; and, above all, the instant utilization of experience and the skill arising from long-continued training.

That a permanent camp can be maintained at the entrance of Jones Sound with very little outlay, and that it would be of the utmost value for the whaling industry and for all future explorations, does not seem to admit of doubt. As regards the maintenance of the secondary stations, it is to be noted that many points in the Arctic show a surprising wealth of animal life. Peary, in 1893, secured *in ten hours twenty tons of walrus meat*—enough to feed five men five years. At the northern extremity of Greenland he could have secured enough musk oxen to support his party for a year. "Thousands of birds" are mentioned at Cape Hay in Lancaster Sound, on Franz Josef

Land, and on Bennett Island. Coal-mines have been found in Lady Franklin Bay, on Melville, Prince Patrick, and Bennett islands. Traces of permanent Eskimo settlements were found as far north as the 82d degree. In the palmy days of the Spitzbergen fisheries, the Dutch for many years maintained a village, called Smeerenberg, on the north shore of Spitzbergen, close to the 80th parallel. In all the regions thus far explored, communication within a radius of 150 miles has been found practicable, and it is not probable that the unknown Arctic area differs greatly from the known. Peary's superb achievement has revealed a new method of rapid travel, which may perhaps be applicable elsewhere than in Greenland. Above all, the gain from even the briefest experience has ever been most decided. To mention only one example: Lockwood and Brainard in 1883 accomplished in 6 days a distance which it had taken them 22 days to accomplish the year before.

On the other hand it is certain that many Eskimo settlements have been abandoned, owing, no doubt, to lack of food. McClintock doubted whether even Melville Island, with its wealth of animal life, could permanently support a party of white men. Even on the basis of McClintock's record of 1,030 miles in 105 days with 10 men and 2,280 pounds at starting, a depot sufficient for 5 men for one year could only be established 100 miles from the base by the labor of 15 men on three trips, if sledges were the only conveyance.

On the Greely expedition a steam-launch was used with great advantage and almost perfect safety in the tidal crack between the fixed land ice and the floating ice. The launch was lost when the party ventured out of the tidal crack. If such a launch should prove equally serviceable in other localities, the problem of Arctic communication would seem to be solved.

ADMINISTRATIVE ARRANGEMENTS.

The Board of Managers of the National Geographic Society having (in its endorsement dated December 8, 1893) recommended the formation of an advisory committee, and the names of Commodore Melville, Dr. Mendenhall, and General Greely

having been suggested, the consent of these gentlemen to act in that capacity was asked and obtained. The selection of the personnel and the purchasing of supplies and apparatus will thus be subject to the approval of this committee, and, in particular, no disbursement will be made without the consent of a majority of this committee. One of the most cautious and successful financiers of Washington has given a most cordial and sympathetic assent to the request that he act as treasurer; and, at his suggestion, a financial institution which has not its superior at the National Capital has been designated as depository. As a guarantee that no funds will be spent until it is certain that the expedition will start, it is agreed that no money can be used until the sum in the treasury shall amount to \$7,000 (the \$4,500 promised by intending members of the party being, of course, left in their control). No part of any contribution is to be spent in payment of salaries without the express consent of the contributor. So long as no disbursement has been made, contributors may at any time withdraw their contributions.

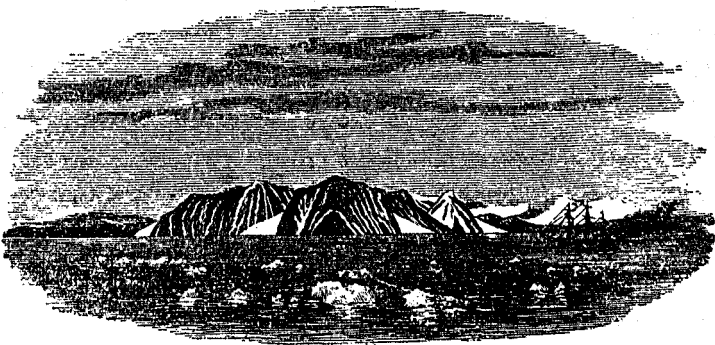
Up to January 9, 1894, \$6,700 had been promised. The expenses are estimated at rather less than \$1,000 per man, making \$10,000 for a party of ten. The addition of a few men, however, will increase the results greatly out of proportion to the increase of the party. To do all the work that ought to be done, and do it to best advantage, the party ought to be constituted as follows:

To remain at the base,	4 men
To travel westward (4 to guard the advanced depot),	8 "
To search the east shore for the missing Swedes,	6 "
To establish the auxiliary station at Cape Warrender,	4 "
Total,	<hr/> 22 men

The six members of the east-shore party, with the rescued Swedes, would return with the whaler in the autumn of 1894. Arrangements for that purpose will be made. It will almost certainly be found advantageous also for one or more of the others to return at the same time, in order to obtain additional apparatus and supplies which the first summer's experience will doubtless

show to be desirable. These would be conveyed back to the base station by a whaler in the spring of 1895.

If no more than \$10,000 can be obtained, the westward party will be limited to six men and the search of the east shore will be made by the four men intended for the station, the building of the house being delayed till their return in, say, two weeks. It is evident that in this case the work both of rescue and of exploration will be seriously handicapped. The Cape Warrender station would then be omitted.



Cape Warrender

From A. H. Markham's "A Whaling Cruise to Baffin's Bay." Sampson, Low & Co., London.

EXTRACTS.

(Authors of extracts and letters will please pardon liberties taken in condensing and italicizing.)

SIR GEORGE NARES.

A Voyage to the Polar Sea, Vol. I, pp. 67-85.

In the valley (on the north shore of Ellesmere Land) was found what in these regions may be termed a richly vegetated plain. Those amongst us who were fortunate enough to visit the locality were well repaid by the grandeur of the scene. The summer thaw of ice and snow had produced a broad watercourse down the valley, which was occupied by a pellucid stream some twenty yards in width. The flora was surprisingly rich: large patches of *Epilobium latifolium* were growing on sandbanks in the dry watercourse, its handsome deep pink blossoms appearing somewhat out of keeping with the Arctic surroundings. Recent traces of reindeer and musk-oxen were very numerous. Insects were not uncommon, the mosquitoes being particularly annoying. Two species of butterflies, a *Colias* and an *Argynnis*, two kinds of moths, and a bumble-bee (*Bombus*) were captured. The shores of the coast where we landed were studded with ancient Eskimo dwellings, numerous caches, and marks of summer tents. The bones of a large whale, no doubt *Balæna mysticetus*, in pieces over five feet long and a foot broad had been used as rafters to one of the igloos or dwelling-places. Numerous bones of the musk-ox, seal, walrus, and narwhal were found.

I regret extremely that our short stay prevented our ascertaining whether Hayes Sound is a channel leading to a western sea. Although we saw no seals in the sound, yet the numerous remains scattered about the old Eskimo dwellings show that they have been obtained in large numbers in this locality, and this is seldom the case in an inclosed bay, where the water is more ready to freeze than in an open channel. It is remarkable that no icebergs were met with in the western waters of Hayes Sound. This indicates that there are no discharging gla-

ciers on its shores. Probably the Prince of Wales Mountains protect them from the moist southwesterly winds.

(Page 84 :) An opportunity was taken (in Princess Marie Bay, 32 miles north of Ellesmere Land) to obtain a haul with the dredge and trawl along the bottom, in a depth of thirteen fathoms, which proved to be rich in animal life. Five or six species of fish were obtained; nine or ten species of *Mollusca*; *Echinodermata* were very numerous, and the meshes of the trawl entangled many *Comatulæ* (*Antedon Eschrichtii*). These beautiful crinoids, closing and opening their pinnules when exposed to the atmosphere, reminded us of sensitive plants; *Echinus drobachiensis* was most abundant. The tangles came up perfectly covered, and it required numerous pairs of scissors and many willing hands to clear them previous to each descent of the dredge. The variety and richness of the captures made us regret that the ever-pressing necessity of advancing northward whenever an opening in the ice admitted, prevented us from using the dredge more frequently.

ÉLISÉE RÉCLUS.

The Earth and its Inhabitants, Vol. I, p. 98.

Grinnell Land is limited southward by Hayes Sound, which, according to all the surrounding natives, is not a fiord or inlet but a strait passing right through to the western seas. Ellesmere Land, as the district south of this strait has been named, forms, with Lincoln Land, the region known to the Eskimos by the name of Umingman Nuna—that is, “Musk-Ox Land.” It is separated from the island of North Devon by Jones Sound, one of the channels opening in the direction of the North Pole, and *it is surprising that none of the Arctic explorers have yet tried to reach that goal through this lateral and apparently easier route.*

DR. FRANZ BOAS

(who spent one year among the Eskimos of Cumberland Sound and explored the southern half of the coast of Baffin Land).

Science, 1887, Vol. X, p. 3.

Its object (*i. e.*, of polar research) is the thorough exploration of the Arctic region and of all its phenomena. In order to attain this object, it is not necessary to organize adventurous expeditions the sole object of which is to push north and gain a few miles upon predecessors.

We will draw attention to some geographical problems which can be solved without incurring great expense or great danger. *The problem which is of greatest importance is the exploration of the islands west of Smith Sound.* There are two starting-points for such expeditions—Hayes Sound and Jones Sound. Eskimo reports lead us to suppose that Hayes Sound forms a strait leading to the western ocean. *Jones Sound is easier of access.* Seals and walrus are said to abound in its western part, which is formed by low land. If this information is correct, this would be an excellent starting-point for the exploration of the archipelago west of Ellesmere Land, and of the west coast of this large island. Such an expedition would not be very expensive, and *almost without danger.* This district is of the greatest importance from a geographical point of view, forming the northern limit of the American continent.

Such work is not the adventurous "polar expedition," the only aim of which is to push north; but these explorations will enable us to go on, step by step, and to reach the unknown regions of the Arctic Basin without running great risks. Explorations in Jones Sound will show how far we can go. Hazardous expeditions into the open ocean without the shelter of land and *without any line of retreat*, such as De Long's expedition, must be abandoned, as they will almost always end in disaster. Progress must be made cautiously, and founded on the discoveries and *experiences* of past expeditions. It is only thus that scientific results can be obtained.

OPINIONS.

(Some of these opinions are based on an earlier prospectus, in which a trip of only six months was contemplated, and on the supplement describing the plan of continuous exploration.)

THE NATIONAL GEOGRAPHIC SOCIETY

Washington, D. C.

A Committee of the Society, after two months' deliberation, submitted the following report, which was adopted by the Board of Managers, December 8, 1893.

Your committee appointed to consider the expedition to Ellesmere Land proposed by Mr. Robert Stein beg leave to submit the following report :

The plan contemplates the occupation of a station on the shores of Ellesmere Land, in Jones Sound, for about 15 months, from, say, July, 1894, to September, 1895. Equipments for permanent camp, coast and inland explorations, and food supplies for two years are to be taken with the party, which will be landed at the designated point by a Scotch or Newfoundland whaler in 1894, and taken off by the same vessel in the autumn of 1895. At the camp observations will be made of terrestrial magnetism, meteorology, and hydrography, while geological researches can be made in connection with explorations of the adjacent unknown regions about Jones Sound and Belcher Channel. The estimated cost of the expedition is \$10,000.

Concerning this project your committee unanimously concur as to the following propositions :

(1) They believe that this expedition to a point lying in the path of the whalers who annually visit the western waters of Baffin Bay is *thoroughly safe and practicable*; that it is desirable for scientific purposes and for geographic exploration; and that no part of the Arctic regions gives promise of greater opportunities for extensive discoveries, with a minimum of danger, hardship, and expense.

(2) They believe that the estimate of \$10,000 is sufficient to cover the necessary expenses, but that the returns from the expe-

dition could be materially enlarged by an additional sum of \$3,000 or \$4,000.

(3) The detailed data and plan presented by Mr. Stein favorably impress the committee as to his energy, persistence, and knowledge of the problems involved in the project. They believe, however, that the selection of the personnel and the fitting out of the expedition should be made under the advice of three recognized experts, one regarding maritime outfit, one on scientific outfit, and a third for regular supplies and land explorations.

(4) Your committee recommend that there be appropriated out of the treasury of the National Geographic Society such sum as the Board may see fit at the proper time, in aid of this expedition.

ANTHROPOLOGICAL SOCIETY OF WASHINGTON.

Whereas a systematic exploration of Ellesmere Land is projected for the coming season, to be prosecuted in a feasible way and always within easy reach of a base of supplies; and

Whereas it is proposed, in connection with this exploration, to study at least one Eskimo tribe living on the western shore of Ellesmere Land, never before seen by a white man: therefore

Resolved, (1) That the Anthropological Society of Washington heartily endorse both the exploration and the plan of operations now proposed by Mr. Robert Stein and set forth in his prospectus.

(2) That the Society recommend that a skilled anthropologist be attached to the exploring party, who shall be instructed by competent American anthropologists in the methods of research.

(3) That the Society appropriate in aid of the exploration such sum as the officers for the ensuing year may decide, not later than the third Tuesday in February, to be available for the purpose.

GENERAL A. W. GREELY

Chief Signal Officer, U. S. Army.

WASHINGTON, D. C.

The west coast of Ellesmere Land, which is to be the object of your expedition, is, in my opinion, the one field of explora-

tion in all the Arctic that promises the largest results with the least amount of labor and danger. With a good boat and provisions for the party at the entrance of Jones Sound, four or six active young men should be able, with ordinary caution, to trace at least 300 miles of that unknown coast, in perfect safety, during a single summer. Coburg Island and Clarence Head are sighted every summer by the visiting whalers, and a trip thereto is no more dangerous than one to Point Barrow.

COMMODORE G. W. MELVILLE

Engineer-in-Chief, U. S. Navy.

WASHINGTON, D. C.

In regard to your proposed Arctic expedition, I am pleased to see you lay so much stress on the one point on which I have always insisted—that no step should be taken in Arctic exploration until you know that your depot of provisions is *actually established*. With a well-supplied depot to fall back on, and a good whaleboat, there is hardly a point of any coast of 300 to 500 miles that can not be reached with safety.

Since you propose to follow the coast line, you will encounter even less danger than we did in our retreat from the “Jeannette.” In fact, if your expedition is well managed, nothing but a very unfortunate or unforeseen accident can prevent it from carrying out its entire program.

MAJOR J. W. POWELL

Director U. S. Geological Survey.

WASHINGTON, D. C.

Your proposed expedition to Ellesmere Land, if carried out as planned, going up and returning by one of the whalers that annually pass by that land, and remaining not more than five months, with a depot of provisions sufficient for two years, seems feasible and safe. If your assistants are scientific men, the results can not fail to be of value. Geologists would be interested to know something of the structure of that land, thus far untrod- den by a white man's foot.

DR. T. C. MENDENHALL

Superintendent U. S. Coast and Geodetic Survey.

WASHINGTON, D. C.

Referring to your proposed expedition to the north of Baffin Bay, I have no hesitancy in saying that observations upon the force of gravity at that point would be of great value, as opportunities for work at such high latitudes have been rare. Should a properly organized and equipped expedition to that region be arranged for, I would feel bound to make every effort to provide for the making of such observations.

MR. J. S. DILLER

Geologist U. S. Geological Survey.

WASHINGTON, D. C.

The Nares Expedition report an extensive series of fossiliferous and other rocks along the western shores of Smith Sound and the region further northward. The strata range from the Laurentian through the Silurian, Devonian, Carboniferous, and Tertiary. The latter contain important beds of lignite at a number of points. The whole series appears to strike northeast and southwest. As the route proposed by you is nearly at right angles to the strike of the rocks, it is probable that the expedition would afford an excellent opportunity to study the whole series in a comparatively short distance, and discover important structural relations as well as valuable economic contents.

MR. R. W. D. BRYAN

Astronomer to the Polaris Expedition under C. F. Hall, 1871-'73.

ALBUQUERQUE, N. M.

I have for many years held to the view that a thorough knowledge of the Arctic regions could be best obtained by continuous exploration. Sporadic efforts are expensive, and the chances of success are very few on account of the yearly changes in the condition of the ice. A small party, such as you have planned, with modest aims, is better than a more pretentious expedition. Hall, Schwatka, Peary, were more successful in proportion to the

money expended than the leaders of larger parties. An expedition such as yours ought to provide for a successful retreat. This you have done by placing your supply depot in the line of the Scotch whaling vessels which every year skirt the northern edge of the Baffin Bay ice pack, and commence their whale-catching off the mouth of Jones Sound. I would advise by all means that you determine to spend at least the first winter at your winter quarters. The reason of this is that the spring and early summer are the best times for sledging. There can be no question but that the region which you propose to explore is rich in animal life. While in winter quarters, in 1872 and 1873, at Life-Boat Cove, I had many conversations with Eskimos in regard to Ellesmere Land, which lay directly across Smith Sound. They told me that west of the mountains that skirted the coast there were large quantities of deer and musk-oxen.

While on board the Scottish whalers, in 1873, I saw them following the whales into Lancaster Sound and into the entrance of Barrow Strait and Prince Regent's Inlet. Then for several weeks very few whales were caught. The surmise was that they went north, through Wellington Channel, but as that channel had not been surveyed, the ships could not follow the whales on account of the insurance. In the exploration which you contemplate, Jones Sound and Wellington Channel would probably be thoroughly surveyed, and that would be an advantage to the whaling interests.

ADMIRAL SIR E. A. INGLEFIELD

(who reached the farthest west in Jones Sound and explored the east coast of Ellesmere Land in 1852.)

99 QUEEN'S GATE, LONDON, S.W., ENGLAND.

Your proposed voyage fills me with deep interest. Ellesmere Land and its coasts, I gather, are to be the field of your operations, and, as far as my memory will carry me back, I think it offered in 1852 great opportunities. I shall not fail to speak of your enterprise whenever fitting opportunity offers.

COLONEL H. W. FEILDEN.

Naturalist to the Nares Expedition of 1875-'76.

WEST HOUSE, WELLS, NORFOLK, ENGLAND.

I consider the exploration of the west coast of Ellesmere Land by the mode suggested in your paper *not only entirely practicable but certain to obtain most valuable results, with the minimum expenditure of money*. I think it almost certain that a small party organized as suggested would be able to trace the west shore of Ellesmere Land and prove whether Hayes Sound is a fiord or a channel. They might possibly connect with Greely's farthest, on the southwest of Grinnell Land. I trust that a competent geologist may be included in the expedition, for observations made on the west coast of Ellesmere Land and Grinnell Land would be of the highest value, and would connect with those of General Greely in Grinnell Land and my own from Cape Sabine to Cape Joseph Henry on the east coast. Let me join in the invaluable advice given by Commodore Melville, to establish a base, and on no account allow the party to attempt exploration unless fire-proof shelter and a year's supply are deposited at the base.

Another letter of COLONEL FEILDEN.

I told you in my last that I had written to Sir George Nares, enclosing your prospectus. I also sent him your letter to read. I heard from him this morning, and he writes:

"Stein is evidently on the right track. I will write to him on Sunday if possible."

If I can assist further let me know. I take the same interest in American Arctic enterprises as in British ones, and my good wishes and sympathies are as cordial as if your expedition carried the Union Jack instead of the Stars and Stripes. I will tell you a tale in connection with Arctic story that I do not think has ever seen the light.

When Aldrich returned to the ship from his wonderful sledge journey round the north shore of Grinnell Land in 1876, we were discussing at the ward-room table a suitable name for the

northernmost point of land he had reached. Various names were suggested, but I well remember Sir George Nares silencing us by saying:

"This is the northernmost point of the American Archipelago yet reached. Remember what Americans have already done in Smith Sound. I shall therefore dedicate the highest point yet reached in America to our kinsmen; I call it *Cape Columbia*."

Sir George's decision was received with acclamation.

ADMIRAL SIR GEORGE S. NARES
Commander of the Arctic Expedition of 1875-76.

LONDON, ENGLAND.

I have studied your proposal for a voyage of exploration to Jones Sound, and am confident that with a carefully picked body of observers most valuable results of a scientific nature will be obtained. Personally, I would much prefer for the party to decide to pass a winter at the depot, in order to take full advantage of the best season the following year for exploring, rather than to be confined to the few summer weeks between the date of landing and the return of the whaler in August to take them away again. I fear little can be done at any distance from the depot in the few available weeks in summer in boats, the only means of getting about in July and August; at that season it will be as much as the party can do to explore the near neighborhood and lay in a stock of fresh provisions.

We have every reason to suppose that there are musk-oxen and reindeer on Ellesmere Land, and the first aim of the explorers should be to establish the depot within a reasonable distance of a good feeding valley. Unless such a position is found at once, it may be better not to finally fix upon the site until the return of the whaler toward the end of August.

Dr. A. SUPAN
Editor Petermann's Geographische Mittheilungen.

GOTHA, GERMANY.

I hail with delight your plan of systematic exploration of the Arctic lands, with the reservation, however, that north polar ex-

peditions, properly so called, such as Nansen's, are still justifiable. Where there is question of large unknown areas, reconnaissances, though of necessity cursory, have always proved advantageous. The two methods of exploration, the systematic and the purely geographic, are not mutually exclusive, but complementary. It was a grave error of Weyprecht to regard the systematic method as the only justifiable one. We owe to him indeed the international polar epoch, but he was also the cause of a complete stagnation in geographic polar investigation.

Although in their fundamental idea your project and Weyprecht's are related, yet in all other respects they differ. This is true, especially as regards the duration and the principle of gradual areal expansion. In that way the entire scientific work becomes different. Only that I should say that in this respect, too, you ought not to expect too much in the beginning, especially as regards the secondary stations. Since your plan looks forward to an indefinite future, you can wait quietly till the work grows of itself, not only areally, but also in minuteness.

ÉLISÉE RÉCLUS

SÈVRES, FRANCE.

I heartily congratulate you on your selection of Jones Sound as the route of advance, since that is one of the gateways which seem to present a far less dangerous avenue than many others in the direction of the Pole.

LIEUT. D. L. BRAINARD, U. S. A.

*(of the Greely party, who, with Lockwood, reached the highest north
83° 24.5', in 1882.)*

FORT WINGATE, N. M.

I feel deeply touched by your generosity in offering to relinquish to me the command of your expedition. Arctic exploration having always been my foremost ambition, and your plan being, in my opinion, one of the most practical ever presented, I recognize in your offer the finest opportunity of my life. It is with

the utmost regret, therefore, that I find myself compelled by personal affairs to decline your offer.

From our conversations, I have no doubt that you will be very successful. The most important idea in your plan, it seems to me, and one which will mark a new epoch in Arctic exploration, is the idea of *a permanent camp at the entrance of Jones Sound*, where it will be in constant communication with the outer world through the whalers. *The wonder is that so simple and inexpensive a measure was not thought of long ago.* Had it been adopted, say 50 years ago, it is entirely probable that Arctic history since then would have remained unclouded by a single disaster. It seems to me that your plan ought to meet with hearty support on the part of the whaling interests, since they will thereby gain a refuge station, such as the American whalers have at Point Barrow.

TELEGRAM FROM

BARON ADOLF ERIK NORDENSKIÖLD

(*of the Royal Academy of Sciences, Stockholm, Sweden, Circumnavigator of Asia.*)

Is place still open for Swede? We contributing thousand dollars. Telegraph.

NORDENSKIÖLD.

In reply, the command of the expedition was offered to Prof. Nordenskiöld.

APPEAL FOR SUBSCRIPTIONS.



The North Pole is surrounded by an area 1,131,000 square miles in extent (more than one-third of the United States), which is entirely unknown. Schwatka has shown that the economic resources of the Polar regions are by no means inconsiderable, and the success of the whaling industry shows that these resources can *by systematic methods* be obtained with little risk. Especially, however, are all competent judges agreed that science can not fail to profit greatly by Arctic research; and it has long passed into an axiom that science never makes a conquest without giving to industry a share in the spoils. Enlightened opinion therefore demands that the unknown area be reduced as fast as can be done with safety.

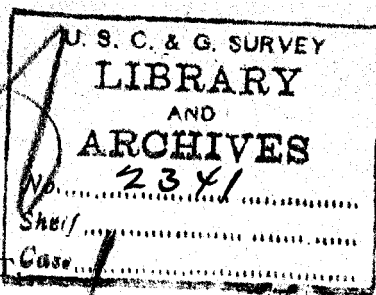
A plan is here presented which has been pronounced "thoroughly safe and practicable" by every authority that has passed judgment thereon. Having a well-supplied base with assured annual communication, the party will be, "humanly speaking," beyond the reach of disaster. It promises to diminish the unknown area by that portion which at present seems most interesting. Its field of operations is distinctively American, inasmuch as it proposes to trace the west side of those lands whose east side witnessed the labors of Kane, Hayes, and Greely. In particular, the outlines of Hayes Sound and Greely Fiord, those waters so peculiarly American, are to be completed by this expedition. If it proves that a permanent camp can be maintained at the entrance of Jones Sound, it will render a most valuable service to the whaling industry and to future explorations in that direction. No one can doubt that explorers will go forth again and again till all the Arctic mysteries are solved. It will be a comfort to humanity to know that at the main gateway of the Arctic there is a well-provisioned camp which renders disaster practically impossible within a radius of at least 200 miles.

No more striking illustration could be given of this fact than by the calamity which renders the present expedition a necessity. Had there been a station on Ellesmere Land when the two young

Swedes were cast away in sight of its shore, their shipwreck would have been merely an unpleasant accident. As it is, one can not think of their situation without dismay. Yet it is by no means certain that they are lost, for the food supply of that land is ample for so small a party, provided they were able to obtain it. If their rescue involved great risk and expenditure, its omission might seem excusable; but when it can be accomplished with almost no risk, by what is probably the *cheapest* Arctic expedition ever planned, and which, moreover, promises to yield a rich harvest of scientific facts and no inconsiderable economic advantages, and to establish a safeguard against all future disasters to whalers and to explorers—it would be a disgrace to humanity if the rescue were not attempted. The sympathy of America can not fail to go out to the young scientists sprung from the hallowed cradle of our Aryan race, the storied Norseland, which in the morning of its history sent Leif Erikson to discover our shores, and which in recent times gave us another Ericsson, whose Monitor helped to save the Union. In all the movements which tend to bring nations closer together, America has ever taken the lead. A thrill of brotherly feeling passed through the English nation when an American expedition went in search of Sir John Franklin; and America in turn felt herself drawn closer to the mother country when the British Government gave its best Arctic ship to aid in the rescue of the Greely party. The world will ring with applause, and the growing sense of brotherhood among the nations will receive an additional impulse, if an American expedition brings back the lost sons of Sweden.

Where is the capitalist who will write his name on what promises to be one of the brightest pages of Arctic history?

SUPPLEMENT



Project for Continuous Polar Exploration.

THE CASE STATED.

The exploration of Ellesmere Land, described in the accompanying prospectus, is to form the beginning of a system of continuous exploration in physical geography to be gradually extended over the whole unknown Arctic area, which is nearly half as large as the United States.

As this circular is addressed to men of science, it is not necessary to defend Polar exploration. It may suffice to recapitulate its main objects:

(1) The meteorology of the Arctic forms the keystone of the whole science of the weather.

(2) The science of geodesy will remain imperfect until the pendulum has been swung close to the very Pole.

(3) Important additions to the science of magnetism may be looked for from researches in the vicinity of the magnetic pole. Especially the fascinating phenomenon of the aurora, the grandest instance of light without heat, may yield remarkable disclosures when studied in the area of its greatest intensity.

(4) The few geologic data brought back from the Arctic have been of startling interest. Many rocks belong to the oldest formations and will thus be apt to contain valuable minerals.

(5) Our theory of tides and currents in the Atlantic must remain imperfect until we know the configuration of the shores of the Arctic ocean and have charted its tides and currents.

If, then, this exploration is worth doing, it is worth doing wisely. Hitherto Arctic exploration has been almost entirely spasmodic. Each expedition was a separate enterprise, which had to prepare an entirely new outfit, and on returning left little that might benefit its successor. Accordingly the cost has been out of all proportion to the results. A similar proceeding

would be ruinous to almost any enterprise. What factory could run with profit if it worked only one year in ten, and every time on resuming had to set up an entirely new plant and train a new set of workmen?

The following pages are intended to show that Arctic exploration is as susceptible of system as any other business, and that by system nearly all danger can be avoided and hundredfold results obtained at a small fraction of the previous expenditure. If systematic exploration is initiated, it will necessarily put an end to all unsystematic attempts, for when it becomes evident that the citadel can be taken by siege, without risk, it will be ridiculous to try take it by storm. Thus many valuable lives and much treasure will be saved. Hence, again, if the systematic exploration is worth beginning, it is worth beginning at once.

PLAN.

The first requisite for systematic exploration is a permanent and secure base of operations. This base or primary station must fulfil two conditions:

- (1) It must be in regular and assured communication with civilization.
- (2) It must be close to the unexplored region.

There is not in all the Arctic a point which so perfectly satisfies these two conditions as the southeast point of Ellesmere Land, at the entrance of Jones Sound, 98 miles south of the point reached by Baffin in 1616, in his sailing ship "Discovery" of 55 tons. It is annually reached in perfect safety by the whaling steamers before they go to the whaling grounds, and is thus in regular, sure, and cheap communication with the outer world. At the same time it is in the immediate vicinity of the unexplored area, being the most northerly point reached by the whalers.

At this point, therefore, it is proposed to erect a permanent station, always provisioned for two years ahead. It need not at first be large; such additions as experience shall prove to be desirable may be made in after years. It will be made cold-proof by filling the space in the double wall with magnesia boiler packing. The permanent force at this station is never to exceed fifteen, always including at least one surgeon with a complete medical

outfit. A workshop will be set up and gradually equipped with the appliances for producing all the traveling-gear needed. Each year supplies and recruits will be sent out, and any persons desiring to quit the Arctic will be sent back, by means of the whalers. (One whaling firm has offered to transport next year's party at the rate of \$250 per man for the round trip.) At this station the recruits will receive their preliminary training, face to face with the problems to be solved, yet not exposed to risk.

If nothing more were done, an immense advantage would already be gained by having the base of operations at the very portals of the unknown region, only 960 miles from the Pole, instead of having it at New York or London. But, besides the primary station, it is proposed to push a fan of secondary stations into the unknown area, at first not much over 100 miles apart, until with growing experience the distance may be increased to 200 miles. The first requisite for each secondary station will be regular communication with the primary station. With the short distances between them, it is safe to say that each trip will become easier than its predecessor until it ceases to be a notable performance. Each secondary station is to have its comfortable house (also made cold-proof by magnesia packing), a spacious ice-house, several boats, ample provisions, furnished in the first instance from the primary station, and plenty of apparatus and ammunition for levying tribute on the animal kingdom in the vicinity. The permanent force at each secondary station is never to exceed five in number. One of these is to devote his time primarily to scientific observations, the others to hunting. Only when the spoils of the chase have yielded them provisions for two years ahead will they be allowed to go exploring. No hunter, however, will at any time be without his note-book, his aneroid, and, if possible, his aluminum theodolite and pocket chronometer (to be supplied by Queen & Co., of Philadelphia), wherewith to map his route. So far as possible, none but men of scientific training will be admitted, so that nothing of value may pass unrecorded.

With stations 100 miles apart, each party of five will have 10,000 square miles of surface (about equal to the State of Vermont) to furnish its food supply. With 200 miles between the stations, the area will be 40,000 square miles (about equal to the

State of Kentucky). One musk-ox will feed five men 30 days, one walrus 80 days, one whale ten years. It seems absolutely certain, therefore, that each secondary station can be made self-supporting as regards food, depending on the primary station merely for supplies of vegetal origin.

As soon as the explorations from any secondary station shall have disclosed a site suitable in point of distance, position, and food supply, a new station will be established with the preceding one as a base. Provisions and material for a house will gradually be conveyed there, and when everything is ready it will be occupied by a complement of men sent from the primary station.

It seems practically certain that by this method a network of stations can be spread over the unknown area without exposing any one explorer to greater danger than is encountered, say, in the Rocky Mountains; and when this network is completed it will enable any one to traverse the Arctic in any direction. It is impossible to predict how long it will take to complete this work, but twenty years seems ample time. Evidently the cost of this system as compared with that of previous expeditions will be very small—first, because no special ship will be needed; second, because the food supply will be drawn almost entirely from the Arctic itself; third, because most of the plant, once established, need not be renewed. When the system is well developed it will certainly awaken a lively interest in scientific circles all over the world, and volunteers will come forward in great numbers, glad to pay for a chance to spend a year or two in the Arctic. Any residual deficit will readily be made good by the scientific societies, not to speak of wealthy patrons, who have not been wanting in the past, and who will certainly be still more free-handed when assured that their munificence will not lead to disaster. It seems not at all impossible that this network may develop into a permanent “Arctic school,” and that eventually no young man of science will think his education complete until he has spent some time at one of those stations.

SUMMARY.

Summing up, this systematic exploration may confidently be expected to lead within comparatively few years to the following results:

(1) The complete mapping of the unknown Arctic area (including contours of elevation and depth).

(2) An extensive and connected study of Arctic meteorology.

(3) A more accurate determination of the figure of the earth.

(4) A fuller knowledge of the laws of distribution and variations of magnetism, and especially of the aurora.

(5) Geologic maps of all the Arctic islands, probably the discovery of valuable mines, and important facts bearing on the history of the glacial period in Europe and America.

(6) An accurate chart of Arctic tides and currents, supplementing the Atlantic chart.

(7) Increased knowledge of the action of physical forces under the influence of extreme cold, especially as regards the properties of the air.

(8) A complete study of the Arctic fauna and flora, and their life conditions, both on land and sea.

(9) Probably the discovery of new whaling grounds.

(10) The study of at least one Eskimo tribe (living, according to native reports, on the west shore of Ellesmere Land), never before seen by white men, and which, therefore, may be supposed to have preserved its primitive characteristics.

(11) A splendid training to a large number of young men, especially college graduates.

(12) A number of life-saving stations for the crews of shipwrecked whalers (without expense to the Life-saving Service).

(13) The North Pole, equalled as a natural wonder only by the South Pole, made accessible to travelers.

(14) The complete cessation of unsystematic attempts, and thereby the saving of life and money.

(15) The best preliminary training for exploring the South Polar regions.

No lover of science can think of this prospect without a feeling of anticipated gratification at so rich a harvest. Isolated facts are almost valueless compared to a system of simultaneous observations at many places and continued for many years.

SCOPE OF NEXT YEAR'S WORK.

The voyage next year is to constitute merely the beginning of this system. The main object of this initial voyage will be the

establishment of the primary station. Eighty days will then be spent in exploring the west coast of Ellesmere Land. If circumstances permit, a secondary station will be established at the west end of Jones Sound. Should an overland party be organized to penetrate into the interior of Ellesmere Land, it might be possible to establish another secondary station at Hayes Sound (which might make connection with Fort Conger in 1895). More than this will in no case be undertaken next year at a distance; any additional work will be confined to the immediate vicinity of the primary station. The majority of the party will return to the United States in the fall of 1894, to report results and prepare for the campaign of 1895.

It is possible that Col. Gilder's expedition for the survey of the vicinity of the Magnetic Pole may go out in the same ship, and that the two expeditions may co-operate in other ways.

COMPARED WITH HOWGATE'S PLAN.

It will be noticed that this plan bears great resemblance to the "Polar Colonization" advocated by Howgate in 1877, which met with so warm approval in this and other countries. The present plan, however, is thought to be an improvement on Howgate's in several respects.

(1) Howgate's main object was the Pole. The present plan considers the attainment of the Pole merely an incident to the exploration of the whole unknown area.

(2) Howgate's plan involved the chartering of a special ship. The present plan uses the steam whalers whose ordinary track lies precisely in the desired direction.

(3) Howgate proposed to establish his base of operations at Lady Franklin Bay, which was proved by subsequent experience to be inaccessible to a ship except at great risk. In the present plan the base of operations will be 391 miles farther south, at the entrance of Jones Sound, which is reached by the whalers with perfect safety every year, and yet is in the immediate vicinity of the unknown area, whereas the land and water around Lady Franklin Bay have been explored to a distance of some 230 miles in three directions and 107 miles in the fourth.

(4) Howgate's colony was to number 50 men—far too many for the limited resources of the country. In the present plan the

number at the primary station is never to exceed 15, which is less than the usual size of an Eskimo settlement. The number at each secondary station is not to exceed five.

(5) In Howgate's plan, exploration was to cease with the attainment of the Pole. The present plan contemplates a network of stations all over the unknown area, to be maintained for at least ten years, perhaps permanently.

FUTURE POSSIBILITIES.

When the line by way of Jones Sound is well established, it may with great advantage be supplemented by another, by way of Franz Josef Land, supplied by the Norwegian whalers, and by a third, by way of Point Barrow, supplied by the American whalers. Other possible lines will readily occur to the well-informed reader. If there was question merely of reaching the Pole, and if funds were ample and time short, the line by way of Franz Josef Land would undoubtedly be the best; but for inaugurating the safest and *cheapest* system of exploration and of scientific investigation of the whole unknown area, to be continued at leisure for many years, the Jones Sound line is incomparably superior to all others. (This statement is made with the full approval of Commodore Melville, the most decided advocate of the Franz Josef Land route for reaching the Pole.)

DR. BOAS' OPINION.

The west coast of Ellesmere Land, which is to be the first fruit of the proposed systematic exploration, cannot be said to be entirely unknown. Dr. Franz Boas, who spent a year among the Eskimos of Cumberland Sound, obtained from them information which enabled him to publish (in *Science*, 1885, vol. v, p. 171) a map of the west coast of Ellesmere Land, called by those natives Umingman Nuna, or Musk-ox Land. If this map is verified, it will lend additional interest to the expedition. In a subsequent article (*Science*, 1887, vol. x, p. 3), speaking of Polar exploration, Dr. Boas says:

“The problem which is of great^{est} importance is the exploration of the islands west of Smith Sound. There are two starting-points for such expeditions—Hayes Sound and Jones Sound. Eskimo reports lead us to suppose that Hayes Sound forms a

strait leading to the western ocean; but even if this be not the case, Greely's expedition across the isthmus between Archer Fiord and Greely Fiord shows that it would not be difficult to reach the west coast. Jones Sound is easier of access. . . . From Eskimo reports it would seem that it is closed, . . . and seal and walrus are said to abound in its western part, which is formed by low land. If this information is correct, this would be an excellent starting-point for the exploration of the archipelago west of Ellesmere Land, and the west coast of this large island. Such an expedition would not be very expensive, and almost without danger."

FINANCIAL ARRANGEMENTS.

It is proposed to place the undertaking under the auspices of some well-known scientific body, which is to receive the contributions and disburse them, thus guaranteeing their application to the purposes here set forth. Such patronage having been secured, it is proposed to issue an appeal to all the scientific societies of the world for contributions to make up the sum of \$10,000 necessary to give the project a favorable start. A statement showing receipts and expenditures will then be issued periodically and mailed to every contributor. For the initial voyage it is desired that the selection of the personnel be left to the originator; later on it is proposed to accord to each contributing society or individual an influence in the selection of the personnel proportionate to the contribution made.

For further particulars address

ROBERT STEIN

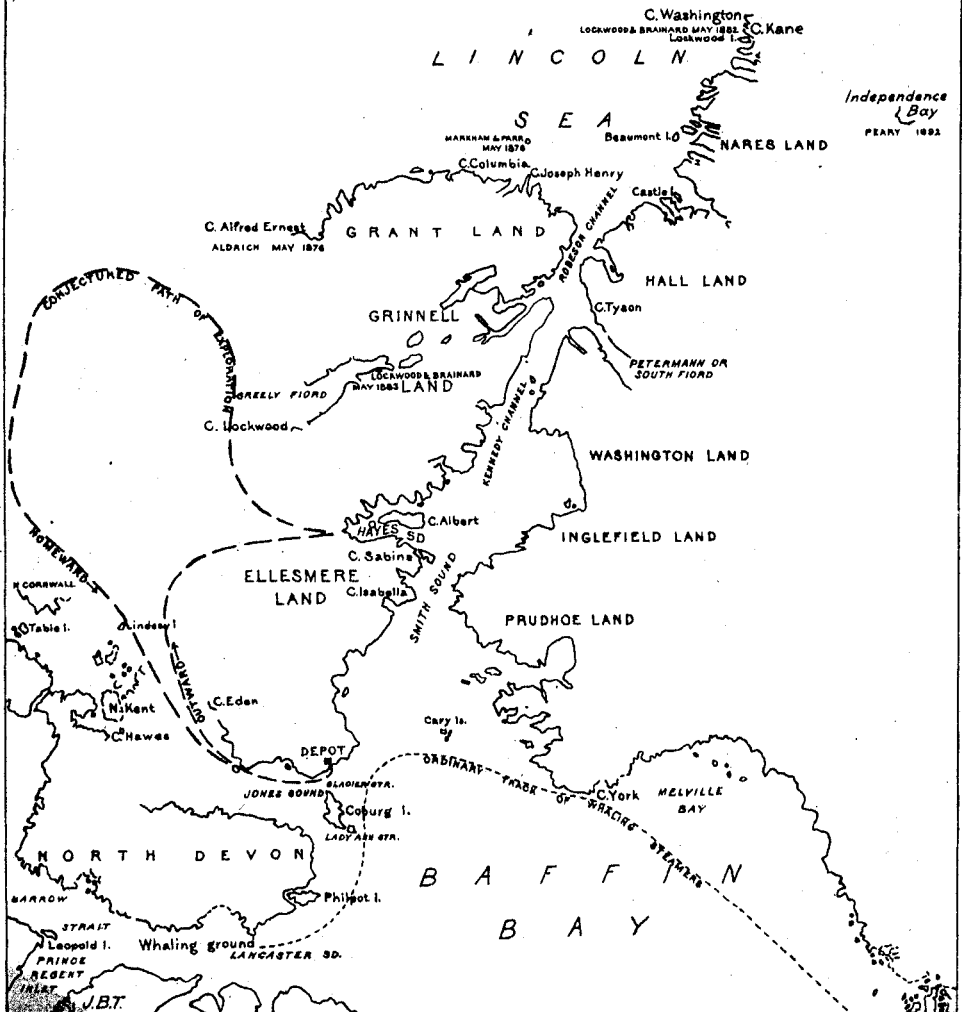
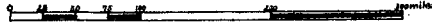
U. S. Geological Survey

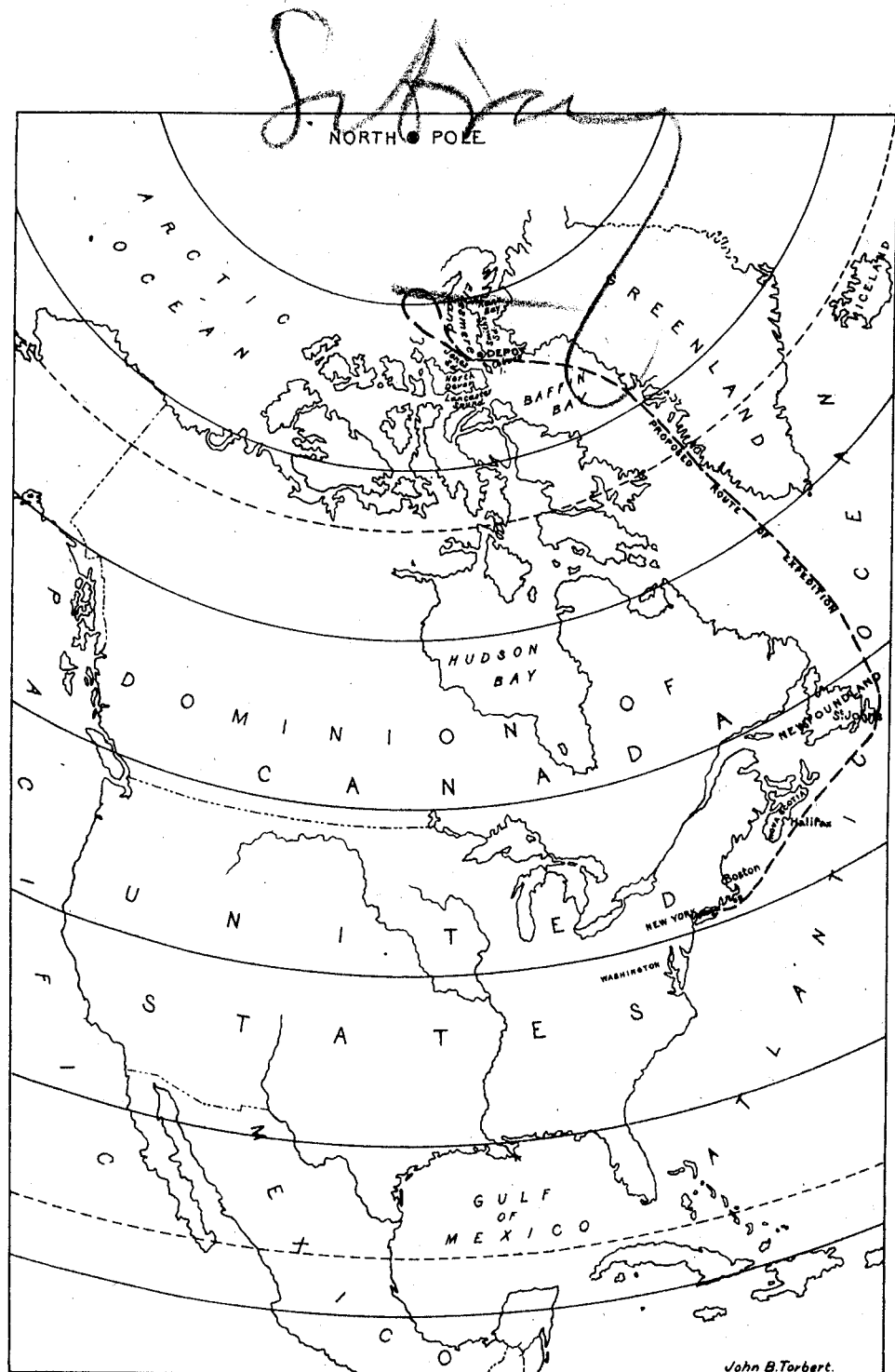
Washington, D. C.

September 23, 1893.

NORTH ⦿ POLE

FIELD OF EXPLORATION AND ITS APPROACHES





PROPOSED EXPLORATION
OF
THE WEST COAST OF ELLESMERE LAND

FORM OF SUBSCRIPTION.

.....(date).....1894.

Mr. JOHN JOY EDSON

Treasurer of the Ellesmere Land Exploration Fund

*First Vice-President Washington Loan and Trust Company
Washington, D. C.*

DEAR SIR:

I enclose.....dollars \$..... as my subscription in aid of Mr. Robert Stein's expedition to Ellesmere Land to rescue the missing Swedish naturalists Björling and Kallstenius. This money is to be subject to Mr. Stein's check, under the following conditions:

(1) No disbursement is to be made without the approval of a majority of the Advisory Committee, consisting of Commodore Geo. W. Melville, Dr. T. C. Mendenhall, and Gen. A. W. Greely.

(2) No disbursement is to be made until the sum in the treasury shall amount to \$7,000, making with the \$4,500 promised by intending members of the party (which is to be left in their control) more than \$10,000, the sum required to make the expedition a certainty.

(3) No part of this money is to be used in paying salaries without my express consent.

(4) So long as no disbursement has been made, I reserve the right to withdraw my subscription at any time.

(Signature).....

(Address).....

NOTE.—If you wish to establish special conditions, please state them in a letter additional to, or replacing, this sheet. Please make checks, etc., payable to John Joy Edson, Treasurer.

The list of subscribers, with amounts, will be printed and mailed to every subscriber whenever the amount in the treasury shall have been increased by \$500. It will also be published from time to time in the newspapers.

ENDORSEMENT BY THE NATIONAL GEOGRAPHIC SOCIETY.

On December 8, 1893, the Board of Managers adopted the following report of its committee:

The plan contemplates the occupation of a station on the shores of Ellesmere Land in Jones Sound for about 15 months, from, say, July, 1894, to September, 1895. Equipments for permanent camp, coast and inland explorations, and food supplies for two years are to be taken with the party, which will be landed at the designated point by a Scotch or Newfoundland whaler in 1894, and taken off by the same vessel* in the autumn of 1895. At the camp observations will be made of terrestrial magnetism, meteorology and hydrography, while geological researches can be made in connection with explorations of the adjacent unknown regions about Jones Sound and Belcher Channel. The estimated cost of the expedition is \$10,000.

Concerning this project your committee unanimously concur as to the following propositions:

(1) They believe that this expedition to a point lying in the path of the whalers who annually visit the western waters of Baffin Bay is *thoroughly safe and practicable*; that it is desirable for scientific purposes and for geographic exploration; and that no part of the Arctic regions gives promise of greater opportunities for extensive discoveries, with a minimum of danger, hardship, and expense.

(2) They believe that the estimate of \$10,000 is sufficient to cover the necessary expenses, but that the returns from the expedition could be materially enlarged by an additional sum of \$3,000 or \$4,000.

(3) The detailed data and plan presented by Mr. Stein favorably impress the committee as to his energy, persistence, and knowledge of the problems involved in the project. They believe, however, that the selection of the personnel and the fitting out of the expedition should be made under the advice of three recognized experts, one regarding maritime outfit, one on scientific outfit, and a third for regular supplies and land explorations.

(4) Your committee recommend that there be appropriated out of the treasury of the National Geographic Society such sum as the Board may see fit at the proper time, in aid of this expedition.

* NOTE.—It may not be practicable to use the same vessel.